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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LAZARO, DAVID R

ART UNIT PAPER NUMBER

2155

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/749,384	DAVIS ET AL.	
	Examiner	Art Unit	
	David Lazaro	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/04/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the Amendment filed 10/04/2004.
2. Claims 1, 2, 7, 9, 15, 17 and 20 were amended.
3. Claims 1-22 are pending in this Office Action.

Response to Amendment

4. The previous Objections to the specification are withdrawn.
5. The previous Objections to Claims 1, 2, 7, 9, 17 and 20 are withdrawn.
6. Applicant's arguments filed 10/04/2004 have been fully considered but they are not persuasive.

Information Disclosure Statement

7. The information disclosure statement (IDS) submitted on 10/04/04 has been considered by the examiner.

Claim Objections

8. Claim 1 is objected to because of the following informalities: In line 10, "to" should be removed. It seems this was inadvertently left in based on the amendment. Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
10. Claims 1-3, 6-11, 14-19, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by H.T. Kung et al. "Credit-Based Flow Control for ATM Networks: Credit update protocol, Adaptive credit allocation, and Statistical multiplexing" SIGCOMM, 1994 (Kung).
11. With respect to Claim 1, Kung teaches a method of transmitting and receiving messages in a network (Page 103-105, Sections 3-5), comprising: transmitting a flow control message header to a transmitting node from a receiving node, wherein the flow control header comprises a message sent field (Page 104, Section 5, Paragraph 2) and a message limit field (Page 103, Section 4, Paragraph 2); transmitting a message from the transmitting node to the receiving node and incrementing a send counter (Page 104, Section 4, Paragraph 2); receiving the message by the receiving node and incrementing a consumed credits variable (Page 104, Section 4, Paragraph 2); determining whether a message was dropped when the message sent field is greater than to the value of the consumed credits variable (Page 105, Section 5, Last Paragraph – 'To provide protection...'); adjusting the message limit field to compensate for the dropped message (Page 104, Section 5, Last Paragraph – 'To provide protection...'); and transmitting the message limit field to the transmitting node (Page 104, Section 5, Paragraph 2 and Page 105, Section 5, Last Paragraph – 'To provide protection...').

12. With respect to Claim 2, Kung teaches all the limitations of Claim 1 and further teaches the determining whether a message was dropped further comprises: setting a variable drop count equal to the message sent field less the consumed credits variable (Page 105, Section 5, Last Paragraph – ‘To provide protection...’); determining if the variable drop count is less than an available credits variable (Page 104, Section 5, Paragraph 2, note that ‘Vr’ can be a drop count), wherein the available credits variable represents the total amount of space allocated to receive messages from a particular node (Page 103, Section 4, Paragraph 3); and increasing the message limit field value and transmitting the flow control message header to the transmitting node (Page 104, Section 5, Paragraph 2 and Page 105, Section 5, Last Paragraph – ‘To provide protection...’, the message limit is inherently increased since any increase in ‘Vr’ will increase the message limit).

13. With respect to Claim 3, Kung teaches all the limitations of Claim 2 and further teaches setting a new credits variable equal to the available credits variable plus the new credits; and setting the available credits variable to zero (Page 105, Section 5, Last Paragraph – ‘To provide protection...’).

14. With respect to Claim 6, Kung teaches all the limitations of Claim 1 and further teaches transmitting at a predetermined time interval the flow control message header to the transmitting node, wherein a value contained in the message limit field is increased (Page 105, Section 5, Last Paragraph – ‘To provide protection...’).

15. With respect to Claim 7, Kung teaches all the limitations of Claim 6 and further teaches the increase in the message limit field further comprises: incrementing send

counter and the message sent field (Page 104, Section 5, Paragraph 2); incrementing an available credits variable by a new credits variable (Page 104, Section 5, Paragraph 2), wherein the available credits variable represents the total number of messages the transmitting node may send and the new credits variable represents additional messages that may be transmitted by the transmitting node (Page 105, Section 5, Last Paragraph – 'To provide protection...', note that 'Ur' or 'Vr' represents an available credits and 'lost cells' represent new credits); and setting the message limit field equal to the consumed credits variable plus the available credits variable (Page 104, Section 5, Paragraph 2).

16. With respect to Claim 8, Kung teaches all the limitations of Claim 7 and further teaches determining if a get credit variable is set to true, wherein the get credit variable represents that additional messages may be sent by the transmitting node to the receiving node (Page 103, Section 4, Paragraph 2); and incrementing the available credits variable by the number of additional messages permitted (Page 104, Section 5, Paragraph 2).

17. With respect to Claim 9, Kung teaches an apparatus comprising a data storage medium for storing instructions when executed by a processor results in the apparatus performing a series of operations, comprising: transmitting a flow control message header to a transmitting node from a receiving node, wherein the flow control header comprises a message sent field (Page 104, Section 5, Paragraph 2) and a message limit field (Page 103, Section 4, Paragraph 2); transmitting a message from the transmitting node to the receiving node and incrementing a send counter (Page 104,

Section 4, Paragraph 2); receiving the message by the receiving node and incrementing a consumed credits variable (Page 104, Section 4, Paragraph 2); determining a message was dropped when the message sent field is less than or equal to the value of the consumed credits variable (Page 105, Section 5, Last Paragraph – ‘To provide protection...’); adjusting the message limit field to compensate for the dropped message (Page 104, Section 5, Last Paragraph – ‘To provide protection...’); and transmitting the message limit field to the transmitting node (Page 104, Section 5, Paragraph 2 and Page 105, Section 5, Last Paragraph – ‘To provide protection...’).

18. With respect to Claim 10, Kung teaches all the limitations of Claim 9 and further teaches the determining a message was dropped further comprises: setting a variable drop count equal to the message sent field less the consumed credits variable (Page 105, Section 5, Last Paragraph – ‘To provide protection...’); determining if the variable drop count is less than an available credits variable (Page 104, Section 5, Paragraph 2, note that ‘Vr’ can be a drop count), wherein the available credits variable represents the total amount of space allocated to receive messages from a particular node (Page 103, Section 4, Paragraph 3); and increasing the message limit field value and transmitting the flow control message header to the transmitting node (Page 105, Section 5, Paragraph 2 and Page 104, Section 5, Last Paragraph – ‘To provide protection...’, the message limit is inherently increased since any increase in ‘Vr’ will increase the message limit).

19. With respect to Claim 11, Kung teaches all the limitations of Claim 10 and further teaches setting a new credits variable equal to the available credits variable plus the

new credits; and setting the available credits variable to zero (Page 105, Section 5, Last Paragraph – ‘To provide protection...’).

20. With respect to Claim 14, Kung teaches all the limitations of Claim 9 and further teaches transmitting at a predetermined time interval the flow control message header to the transmitting node, wherein a value contained in the message limit field is increased (Page 105, Section 5, Last Paragraph – ‘To provide protection...’).

21. With respect to Claim 15, Kung teaches all the limitations of Claim 14 and further teaches the increase in the message limit field further comprises: incrementing send counter and the message sent field (Page 104, Section 5, Paragraph 2); incrementing an available credits variable by a new credits variable (Page 104, Section 5, Paragraph 2), wherein the available credits variable represents the total number of messages the transmitting node may send and the new credits variable represents additional messages that may be transmitted by the transmitting node (Page 105, Section 5, Last Paragraph – ‘To provide protection...’, note that U_r or V_r represents an available credits and lost cells represent new credits); and setting the message limit field equal to the consumed credits variable plus the available credits variable (Page 104, Section 5, Paragraph 2).

22. With respect to Claim 16, Kung teaches all the limitations of Claim 9 and further teaches determining if a get credit variable is set to true, wherein the get credit variable represents that additional messages may be sent by the transmitting node to the receiving node (Page 103, Section 4, Paragraph 2); and incrementing the available

credits variable by the number of additional messages permitted (Page 104, Section 5, Paragraph 2).

23. With respect to Claim 17, Kung teaches a system for transmitting and receiving messages in a network (Page 103-105, Sections 3-5), comprising: a receive done module to determine that all messages transmitted have been received based upon a flow control header (Page 105, Section 5, Paragraph 2), wherein the flow control header comprises a message sent field (Page 104, Section 5, Paragraph 2) and a message limit field (Page 103, Section 4, Paragraph 2); and a post send module to update an available credits variable, wherein the available credits variable indicates the total number of messages a transmitting node may send to a receiving node (Page 104, Section 5, Paragraph 2).

24. With respect to Claim 18, Kung teaches all the limitations of Claim 17 and further teaches the receive done module increments a consumed credits variable and compares the consumed credits variable to the message sent field to determine if a message has been dropped (Page 104, Section 5, Last Paragraph – ‘To provide protection...’).

25. With respect to Claim 19, Kung teaches all the limitations of Claim 18 and further teaches the receive done module will add an additional value to the message limit field when it is determined that a message has been dropped. (Page 105, Section 5, Paragraph 2 and Page 104, Section 5, Last Paragraph – ‘To provide protection...’, the message limit is inherently increased since any increase in ‘Vr’ will increase the message limit).

26. With respect to Claim 21, Kung teaches all the limitations of Claim 19 and further teaches a post receive module to increment a new credit variable and process pending message requests (Page 105, Section 5, Last Paragraph).

27. With respect to Claim 22, Kung teaches all the limitations of Claim 19 and further teaches a periodic update module to determine at a predetermined time interval if a transmitting node has run out of credits used to transmit messages with (Page 105, Section 5, Last Paragraph).

Claim Rejections - 35 USC § 103

28. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

29. Claims 4, 5, 12, 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kung in view of U.S. Patent 6,658,469 by Massa et al. (Massa).

30. With respect to Claim 4, Kung teaches all the limitations of Claim 3 and further teaches setting a send limit equal to the message limit field (Page 103, Section 4, Paragraph 3). Kung does not explicitly disclose executing a threshold module. Massa teaches the execution of a threshold module in a credit-based message transmission system (Col. 16 lines 22-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Kung and modify it as indicated by Massa such that the method further comprises executing a threshold module. One would be motivated to have this, as there is need for a flow

control protocol that works efficiently for all applications (Col. 3 lines 21-25 and Col. 16 lines 47-58 of Massa).

31. With respect to Claim 5, Kung in view of Massa teaches all the limitations of Claim 4 and further teaches the threshold module further comprising: determining if the available credits variable is less than a credit threshold variable; and transmitting the flow control message header to the transmitting node (Col. 16 lines 22-38 of Massa).

32. With respect to Claim 12, Kung teaches all the limitations of Claim 11 and further teaches setting a send limit equal to the message limit field (Page 103, Section 4, Paragraph 3). Kung does not explicitly disclose executing a threshold module. Massa teaches the execution of a threshold module in a credit-based message transmission system (Col. 16 lines 22-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Kung and modify it as indicated by Massa such that the method further comprises executing a threshold module. One would be motivated to have this, as there is need for a flow control protocol that works efficiently for all applications (Col. 3 lines 21-25 and Col. 16 lines 47-58 of Massa).

33. With respect to Claim 13, Kung in view of Massa teaches all the limitations of Claim 12 and further teaches the threshold module further comprising: determining if the available credits variable is less than a credit threshold variable; and transmitting the flow control message header to the transmitting node (Col. 16 lines 22-38 of Massa).

34. With respect to Claim 20, Kung teaches all the limitations of Claim 19 and further teaches updating the message limit field to include additional credits when no further

credits remain for the transmitting node (Page 103, Section 4, Paragraph 2). Kung does not explicitly disclose a threshold check module to determine if the transmitting node has any available credits remaining. Massa teaches the execution of a threshold module to check the available credits remaining in a credit-based message transmission system (Col. 16 lines 22-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the system disclosed by Kung and modify it as indicated by Massa such that the system further comprises a threshold module to determine if the transmitting node has any available credits remaining. One would be motivated to have this, as there is need for a flow control protocol that works efficiently for all applications (Col. 3 lines 21-25 and Col. 16 lines 47-58 of Massa).

Response to Arguments

35. Applicant's arguments filed 10/04/2004 have been fully considered but they are not persuasive.

36. Applicants argue (Page 17 in Remarks) - *"Applicant is unable to find in Kung any mention of a "message limit field." Accordingly, Kung does not show each and every element of claim 1. Claims 2 and 3 and *8, since they are dependent upon claim 1, are also distinguished from Kung for the same reasons as claim 1. Apparatus claim 9 has a flow control header element with a "method limit field" as claimed in claim 1 so that the rejection of it based upon Kung is also defective for the same reasons stated for claim 1. Claims 10, 11, 14-16 depend from claim 9. Claim 17 is a claim drawn to a system which also includes a "message limit field" similar to the one claimed in claim 1. Since Kung does not have such a field, the rejection of claim 17 is defective for the same reasons as previously stated for claim 1. Claims 18, 19, 21 and 22 are all dependent from claim 17 and distinguishable from Kung for the same reasons. For the reasons*

stated above and additional reasons, claims 1-3, 6-1 1, 14-19, 21 and 22 are patentable over Kung. Reconsideration and allowance are respectfully requested." Applicants make similar arguments with respect to the §103 rejections on Page 18 in the Remarks.

a. MPEP 2111 states that claims are to be given their broadest reasonable interpretation consistent with the specification. On page 7 of Applicants' specification, starting at line 24, a "message limit" is described as representing "a total number of messages a remote node may send over the connection". With this description in mind, review of the Kung reference shows that Kung specifically teaches a flow control message (the credit cell), contains a "number of unoccupied cell slots" in relation to the receiving node (Page 103, Section 4, Paragraph 2). Since each unoccupied slot represents an available space for a message, this number represents the total number of messages the receiving node is capable of receiving. In other words, the number represents a total number of messages a sending node may send to the receiving node. This is consistent with the description of the "message limit" given in the specification. Therefore, Kung teaches a "message limit field" and is within the scope of the claimed limitations.

37. Applicants argue - *"The Office Action fails to state a proper obviousness rejection because it did not meet the requirements summarized in §2142 of the MPEP. The Office Action does not attempt to show motivation or reason to combine the two cited documents."*

b. The Office Action mailed 06/04/2004 clearly sets forth motivations/reasons for the combination of the two cited documents (see pages 11-13, paragraphs 33-38 of the Office Action mailed 06/04/2004). Applicants only provide a conclusive statement without any supporting evidence or explanation of how the given motivations are in error.

38. Applicants argue - *"The Office Action fails to state a proper obviousness rejection because it did not meet the requirements summarized in §2142 of the MPEP...Nor does it purport to show evidence that there would be an expectation of success if they were combined as the Office Action proposes."*

c. MPEP 2143.02 discusses, in detail, "Reasonable Expectation of Success". MPEP 2143.02 primarily deals with the Chemical and Biotechnology arts where there is an inherent level of unpredictability. The Electrical and Computer arts are considered to have a high level of predictability. MPEP 2143.02 states that in predictable arts, the burden is on the applicant to show evidence that there was no reasonable expectation of success. Applicants have failed to show sufficient evidence of there being no reasonable expectation of success. Only conclusive statements were given without specific evidence. Although the Applicants may be implying the previous arguments provide sufficient evidence to support their conclusion, the Examiner has already addressed these previous arguments. As such, the Examiner believes there is reasonable expectation of success based on the high level of predictability in the art as well as the prior art of record both cited in the rejection and discussed in the Examiner's responses above.

Conclusion


39. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 571-272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David Lazaro
February 25, 2005


HOSAIN ALAM
SUPERVISORY PATENT EXAMINER